ENTOMOLOGY BULLETINS: NO. 2

CONTROL OF TERMITES IN COCOA

By E.S.C. Smith, Entomologist
Lowlands Agricultural Experiment Station, Keravat

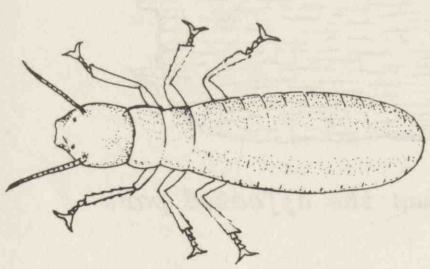
Several species (kinds) of termites are found on cocoa in Papua New Guinea. The most important of these are the giant cocoa termites *Neotermes* which can cause considerable damage to cocoa and *Leucaena* shade trees. These termites are common on the Gazelle Peninsula and can be found throughout the Islands Region. One type of giant cocoa termite found in New Ireland can enter healthy trees through the roots.

Giant cocoa termites are divided into different castes (classes). These are males and females and soldiers and workers. They are called 'giant' termites because members of all castes are much larger than those of most other kinds of termites. Soldiers and winged giant cocoa termites are 12-14 mm long and the workers are about 10 mm long. The colonies are found only inside trees. There is no evidence of external runways. The insects attack through dead branches or roots and then they tunnel into the live timber.

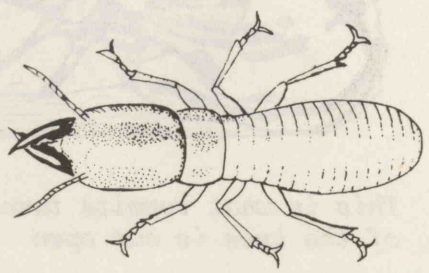
DAMAGE CAUSED

An infestation of termites is often difficult to detect in a cocoa tree until the tree has fallen over or until a large branch has broken away in a strong wind or heavy rain storm. However, the bark over termite galleries appears 'waterlogged' or saturated. This sign can, with practice, be used to detect infestations in affected trees. Younger colonies which have not made extensive tunnels can only be found by breaking off dry wood from the tree.

Smaller species which build runways on the outside of cocoa trees or coconut palms do not cause much damage in the Islands Region and special control measures are not recommended.



Worker giant cocoa termite



Soldier giant cocoa termite

This bulletin was first published as LAES Information Bulletin No. 17.

CONTROL OF GIANT TERMITES

Pruning

Control of these termites is largely a matter of regular inspection and pruning of all dead wood. Where an infestation is found, insecticide should be applied to kill the termites. Since infestation can only occur through dead wood, care should be taken to prune branches as close as possible to the main branch or trunk. If pruning is carried out carefully, new callus tissue will seal the wound and prevent termite entry. It is suggested that pruning should be carried out correctly and regularly, and that all termite nests should be treated as soon as they are found.

Insecticide treatment

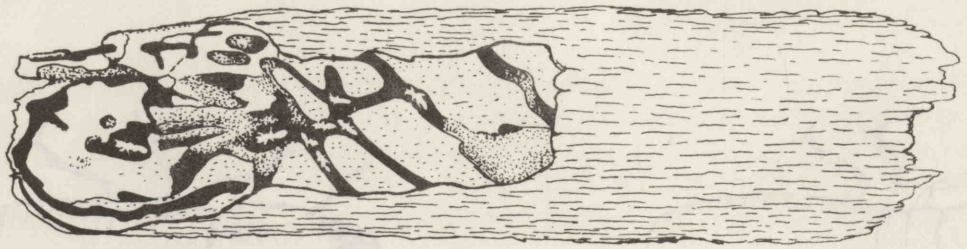
When a colony is located, the galleries should be opened with a bush knife and about 300 ml (0.5 pint) or two thirds of a large (440 g) fish tin of 0.2% chlordane mix poured into the nest. The worker termites then get the poison on their bodies and carry it through the nest where it kills the single queen termite. Once the queen is dead, the colony soon dies out. Regular treatment will reduce the rate of new infestations to a very low level

INSECTICIDE MIXTURE

It is recommended that a 0.2% solution of chlordane 80 is used to kill the termite colonies. This solution can be made by diluting one part of chlordane 80 in 400 parts of water. For instance, the following dilutions could be made:

0.25 *l*	chlordane		10 fluid ounces	chlordane 80
100 *l*	water	OR	25 gallons	water
25 ml	wetting agent*		1 fluid ounce	wetting agent*

A smaller volume could be made by diluting 50 ml (2 fluid ounces) of chlordane 80 with 20 *l* (5 gallons) of water and adding 5 ml (0.2 fluid ounces) of wetting agent. The smaller volume of mixture would be enough to treat about 80 infested trees while 100 *l* would treat 300-400.



This is what termite tunnels look like when the affected part of the tree is cut open

---

* *Any liquid detergent can be used as a wetting agent.*

INSECTICIDE COST

In April, chlordane 80 could be bought in Rabaul at K168.75 for 20 l or about K8.50/l, which is sufficient to treat 600 trees at a cost of less than 1.5 toea per tree for insecticide.

Any queries on these or any other insect problems in cocoa should be addressed to:

Agronomist-in-Charge, Lowlands Agricultural Experiment Station, KERAVAT, East New Britain Province.

Copies of this Entomology Bulletin are available from: Publications Officer, Publication Section, D.P.I., P.O. Box 2417, Konedobu.